Menlo Park Notebook #22 [N-79-03-10.1]

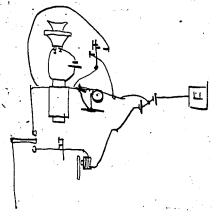
This notebook covers the period March 1879-February 1880. Many of the entries are by Edison. There are also entries by Charles Batchelor and Francis Upton. The names of John Kruesi and John Ott appear occasionally as witnesses. The material relates to experiments on electric lighting and on the telephone. Among the electric light material are notes and drawings of metal and carbon filament lamps, including vacuum experiments; notes, drawings, and calculations about generators; calculations for electric power distribution systems; and drawings of test apparatus. The telephone material consists of notes and drawings by Edison and Batchelor. The book contains 281 numbered pages.

Blank pages not filmed: 104-113, 120-123, 126-129, 132-133, 138-143, 146-147, 194-205, 210-211, 226-235, 266-267.

Missing page numbers: 115-116, 133-134.

No 22

March 10 1879
Tag



LIBRARY OF THE

BOARD OF PATENT CONTROL,

120 BROADWAY, NEW YORK.

.....AL ELECTRIC

....., 189..

March 9 1879 Sat 3

Try stiffer springs from Dr design to Chuck.

Dry Chuck out.

Try Mobograph receivers in an Secondary coil.

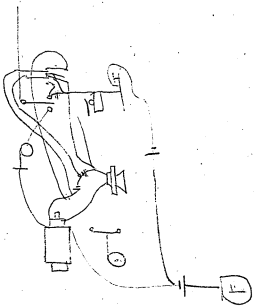
Shunt Receivers with plain resistance

Shunt with a magnet,

Test with Candle Scale Coils

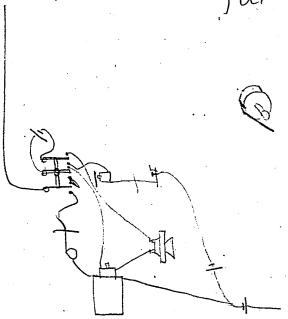
March 10 1879
Taf

March 10 1879
Taf



March 10 1879

Jas



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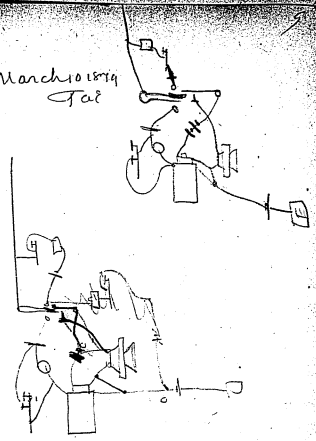
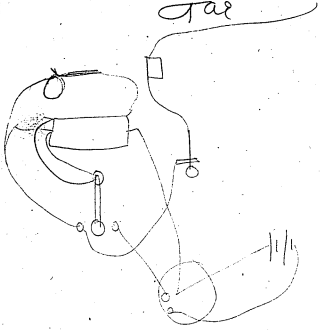
7

Marchio estq
Tal



March 10 1879

Gas



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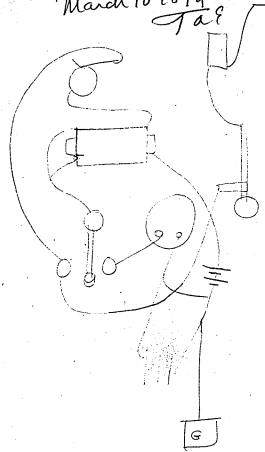
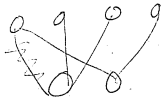
March 10 1879
Tal?



Mch 10 1879



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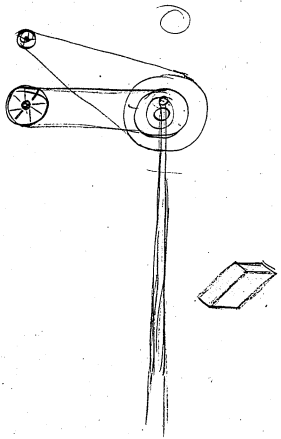
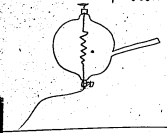
Mchio 1879 Fag



March 20. 1894 [illegible]

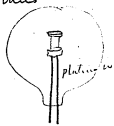
Vacuum Experiments

4 wire - wire common



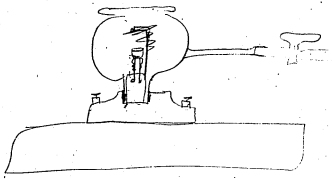
4 of pure iron -
4 " Piano steel
4 " Copper
4 " aluminum
4 " Magnesium
4 " Nickel
4 " $\frac{10}{1000}$ - platinum
4 $\frac{10}{100}$ - pt + gr 10 p.c
4 $\frac{10}{1000}$ - pt + gr - 20 p.c.
4 $\frac{10}{1000}$ - pt + gr - 20 p.c. with Magnesia
4 $\frac{15}{1000}$ - pt + gr - 20 -
4 $\frac{5}{1000}$ - pt + gr 20 - with nitrate Magnesia

2 lime cylinders with 2 layers
1/1000 - Pt on 20 pc pyro insulation 12/1000 -
arranged thus



March 20/19
Ade

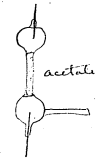
previously brought up in hand pumps -



Two of these -

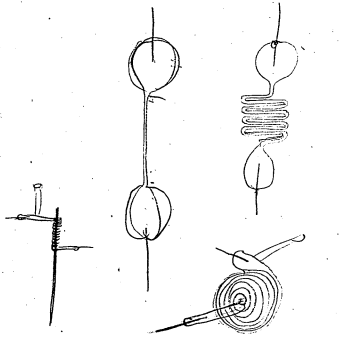
March 20 1879

TAE

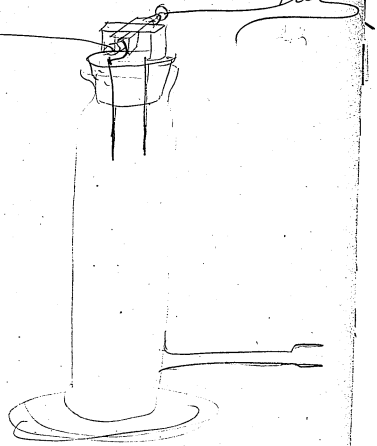


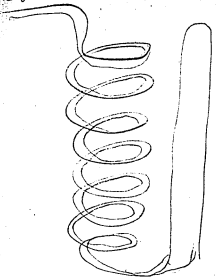
March 20 1894

solid of Revolution



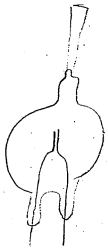
March 20 - 1879 Tate





March 20 1879.

TAE

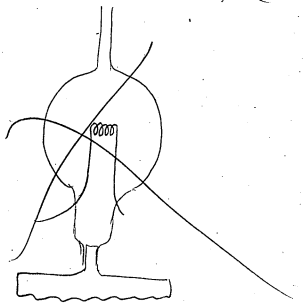


ground joint

3 [illegible] together

March 20 1879

Tait



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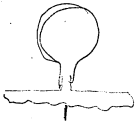

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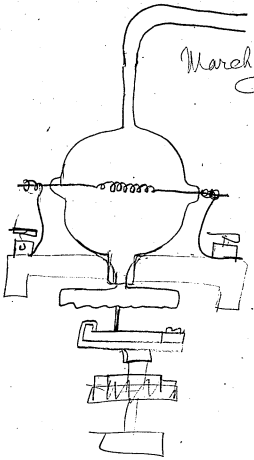
March 20 1809



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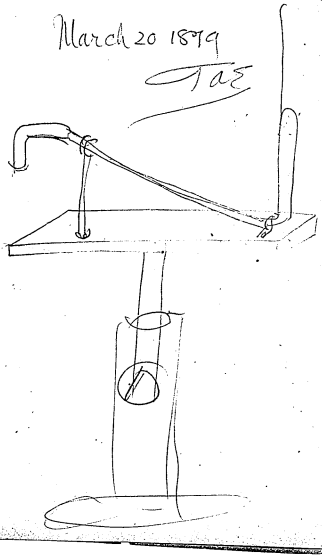
35

March 20 1879

TAE



Apl 1st 1879 37

A E

Platinum Spiral .020 thick.
~~Thickness~~ same as shop lamp, but uncoated and in vacuo.
Splendid light, better than anything we have seen on platinum without coating. Photometer say about 25 candle power.
When heated, it melted beautifully showing on one end a large globule and on other part of the spiral all melted.
Shows a very slight brownish shade of Volatilization

Chemically pure iron
came up to about 6 or 7 candle power. The spiral did not melt clear but where it was connected to the platina

JOE April 1/19

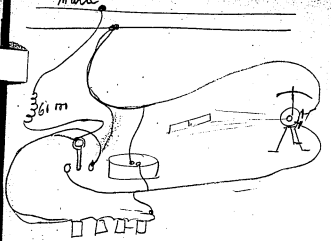
and where the air had not been got out of it it started I think we did not take a long enough time

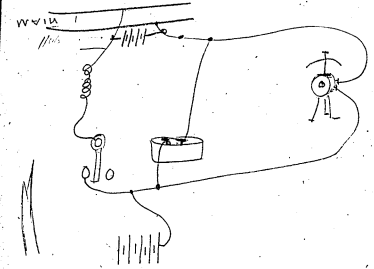
Aluminum

This would not come up at all above a ~~dull yellow~~ when it seemed to get weak in the knees and each spiral showed a tendency to rest on its neighbor

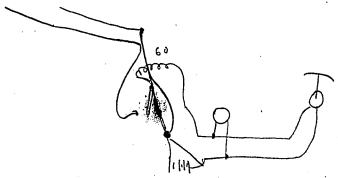
Copper

This spiral was of .012 wire glass cracked when at a red owing to the





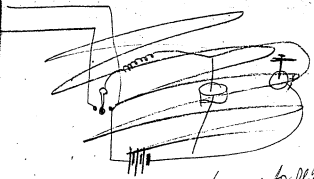
3.5 | 3.5 | 8 3 9 0
1 8 9 5
1 1 4 0
1 8 5


60

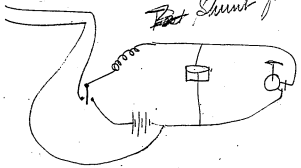
14 62

90
87

5

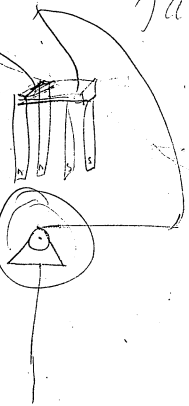


Shunt for regulating

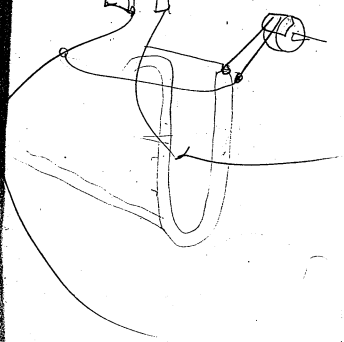


Use cells of 1.48 volts and with 20.
adjust shunt to make deflection
of 60 degrees this make 3° per
volt now take deflection
of current through same and
work by proportion

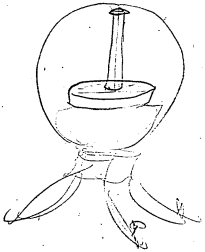
April 3rd 79 Tag

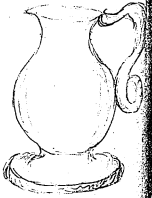


April 3 1879 Tag

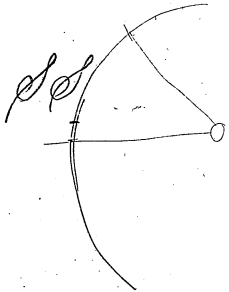


April 30 1949 Sat





Sunflower regulator for Electric Light



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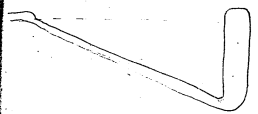
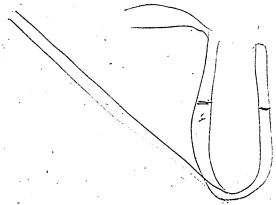
May 30 1879
Jas





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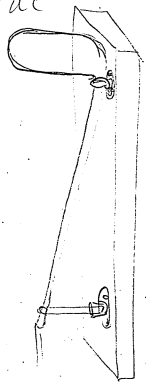
55

May 31 1879
GAE

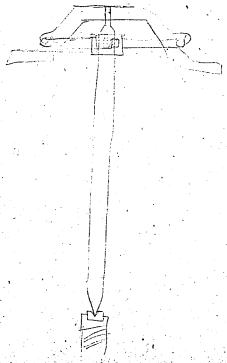


Moulds for Rubber Heels.

May 23d 1879

Tat

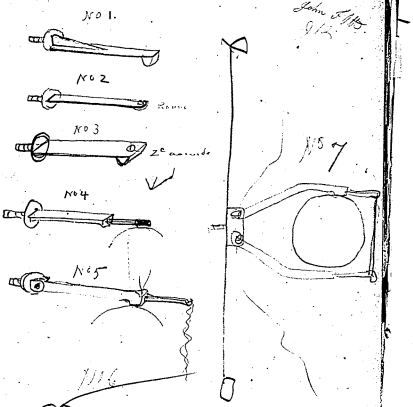
Shaft



60

Induction coil no magnet.

Patterson Chas.



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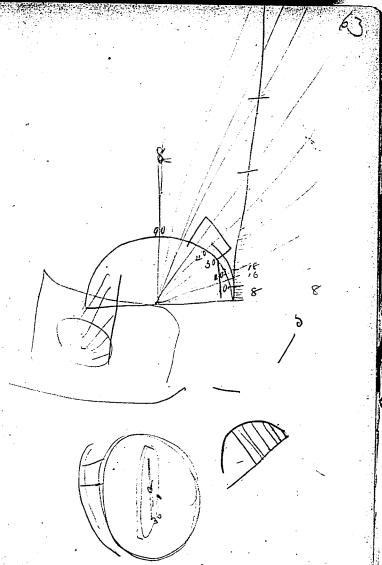
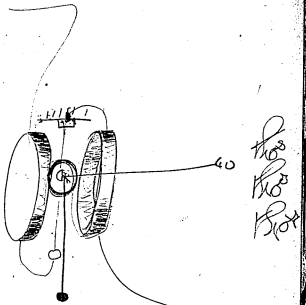
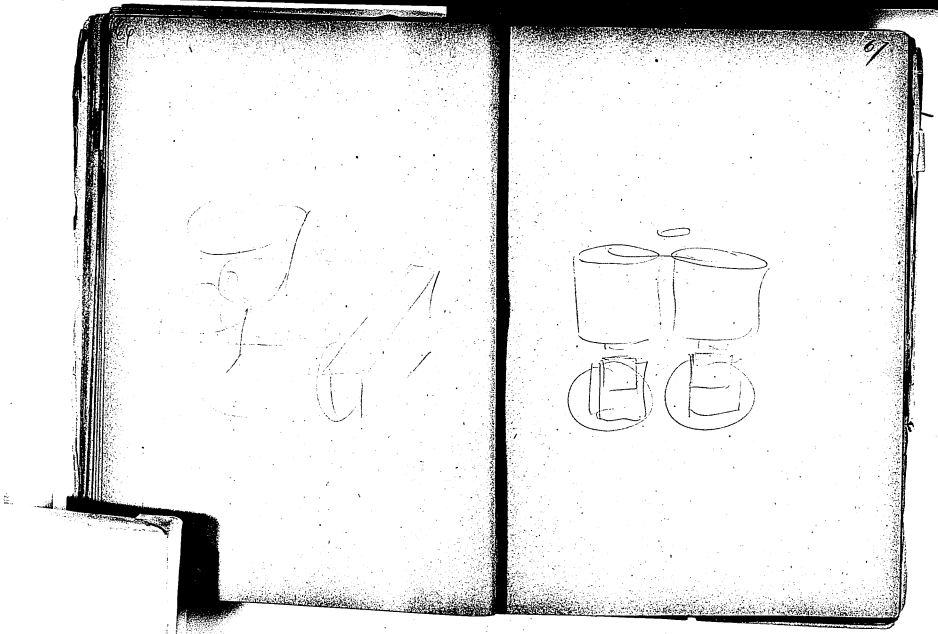
63







$7.50

3

$100
1.25
5
.625

315
.625

2.5623
1.7959
2.3582

$2.28
1.2
456
228
2.736

1.2

conductors $4.50 per lamps

10 per H.P.
the 1.2 per H.P.

8 per H.P.

hour 9.6 per H.P.

1 ct an hour per H.P.
.125 cts per lamps
per hour

6

$2.28 per years
2.73 per years

45 cts saved

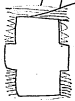
1 arm comes down within
1/2 inch diaphragm

2

Side swing arm
ditto on transmitter arm

66·35
33 1·75

95·5
5
47·5
19·08



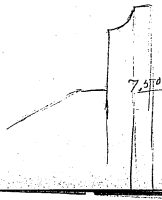
Frame

Rim button between bearings

Make wheels 4 to 7.

Make new pressure spring ~~and~~

Make .128 thick diaphragm



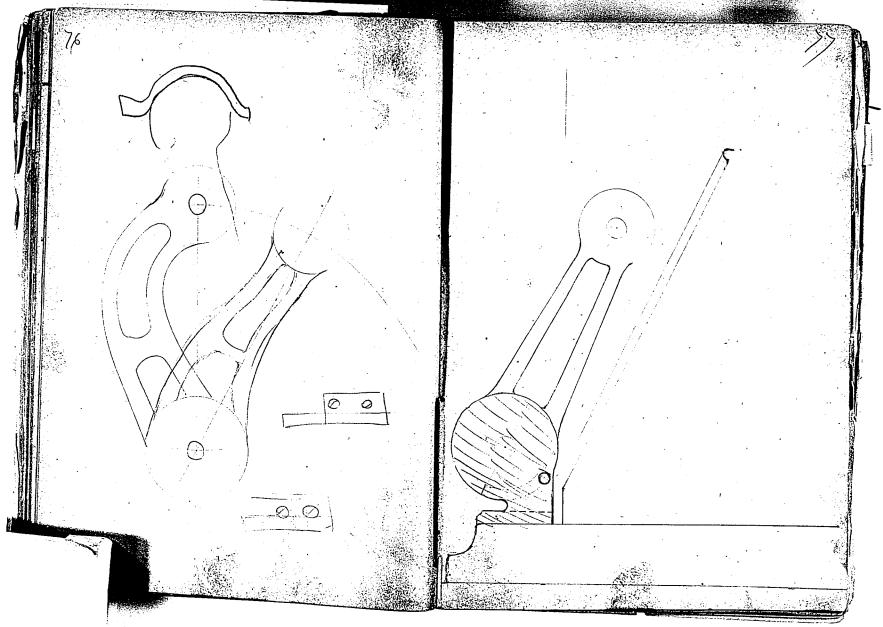
74

Out & I but 2 would do
about 1 oclock look at
rain! they gauge 2 pay 6 x 3 / 33
fits every 6 take 11 / 63
595 / 132
17 / 43
21 16 / 32

620 aw
ok
ok

5

Iron — 19. 0.8
Castam 200 4. 00
Wire — 4. 4. 8
Cotn Wire —
4th 13# Wire
32 Iron Wire
Base
Commutator



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27 / 938 (34
81
128.
108
2024
24
96
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576.
144
2304
2304
25344. 858

35.

1 . 25344.
2 12672
4 6336
8 3168
16. 1584
32 792

12600 2
6300 4
3150 8
1575 16

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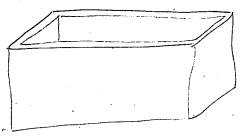

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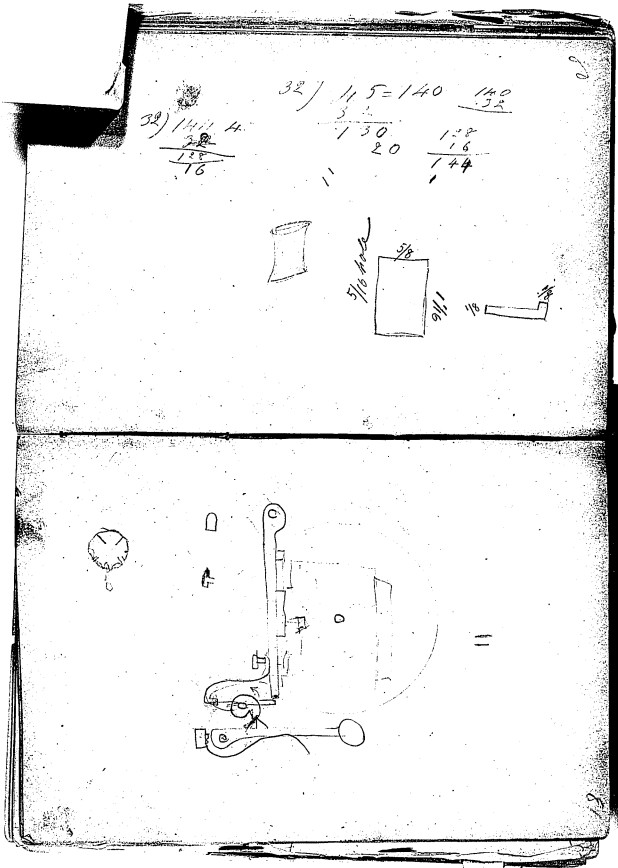
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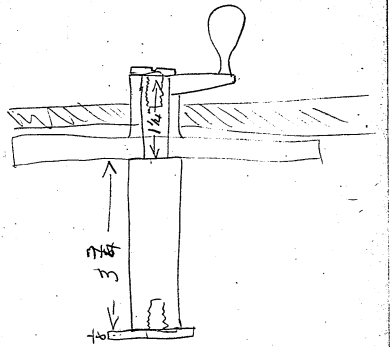
82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予備
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86

87

100

$42\frac{1}{2}$

$34\frac{1}{2}$

70 —

85

$42\frac{1}{2}$

1 sr

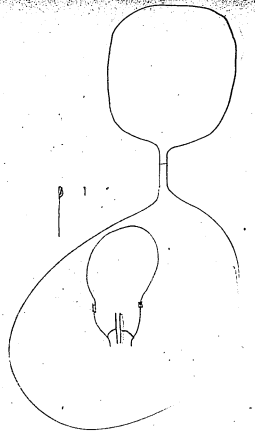
100

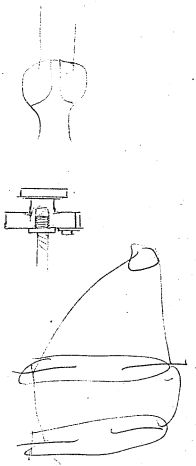
85.

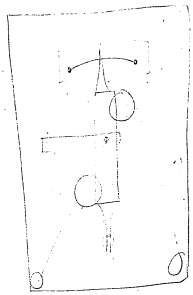
5

7

14.







Modelling Wax:

Rosin
Great deal Starch powder
Beeswax.
Tallow - (Little.)
Orange powder for Color.

1.7
1.7
11.9
17
289

1.6
1.6
96
16
256

3.00

1.5
1.5
75
15
225

4.77
22.85

1.69

.2285
.1505

1.41 .6780

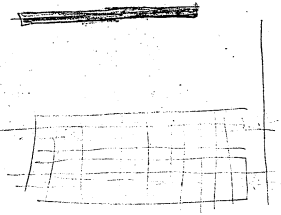
$\frac{1}{4}$ the surface 2 times the light

$\frac{1}{2}$ " " 2.4 " " "

$\frac{2}{3}$ the surface 1.2

1.4 1.

1 1.2 the light



47.7	1.6785
10.1	1.0043
	.6742

4.72 Weeks

47	1.6721
8.21	.9143
5.72	7578
43.2	1.63355
6.15	.7889
7.03	.8466

35.6	1.55514
4	.6021
8.9	.9493
35.1	1.5453
3.55	.55502
9.9	.9951

33.1	1.5198
3.05	.4843
1.08	1.03355

30.2	1.4800
2.5	.3979
12.1	1.0821
22.8	1
2	
11.4	

44 Gas jet

Red 48

Yellow 47

Yellow 48

Higher 48

Very much

3" to inch

3/4 x 5 = 4 1/4 per inch

.045 width

.135

.270

.27

Francis Radiating

3.02 1/2

.045

Francis R. Upton

1/20 .022

1/20 .05

.032 .805

.192 .030

100

122 Ch. Ch.

Ch. Ch

Dr London

625
625
625

468
468
468

101

2 | 625
312

.042
12
.084
4
.336

234

032
6 44
.192 6
264

264

042
12

Jobs 264 264
264 264 264 264
264 264 264 264 264
264 264 264 632

.045
6
.270

5

.234

88

236 | 340736 | 1440
236
1047
944
1033
944
0896

1440
23
4320
2880
3311
20

88
88
704
704
7744
44

4 75,

30976
30976
340.736

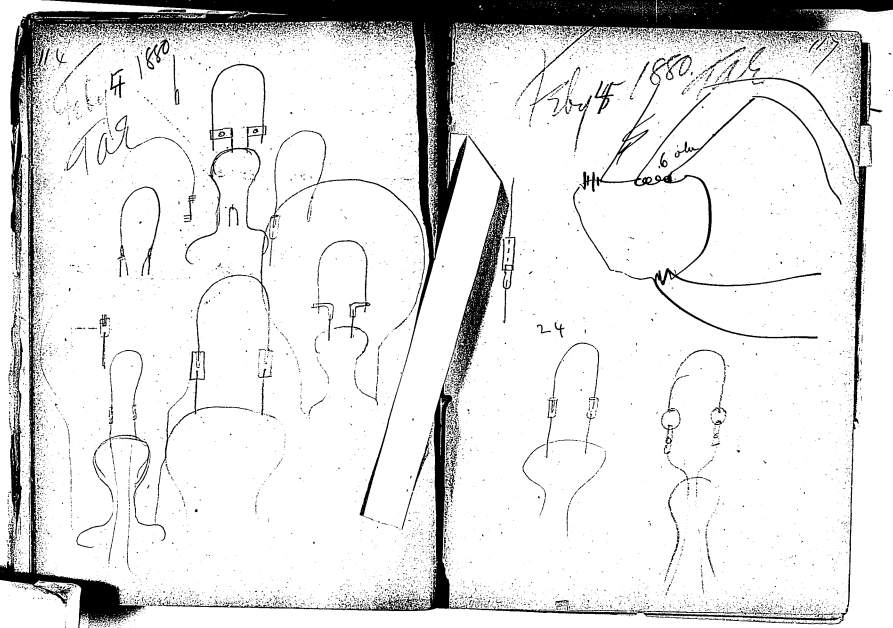
193 | 340736 | 1765
193
1477
1351
1263.
1158
1056.
965

26 | 85

1765
15
8825
1765
26473

1765
18
14120
1765
31770

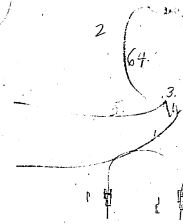
1765
28
35300

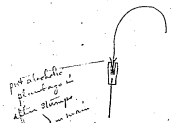

6 ohm
24

118

Feby 4 1880.

TAE

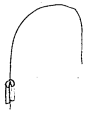




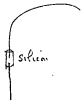
119

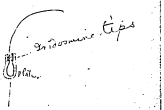
Feby 4 1880

TAE

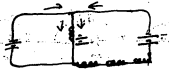


Spirit-wood fibre imbedded in vulcanite Cauoutchouc





Sworn before me
this 4th day of June 1880
C.W. Foster Notary Public



42

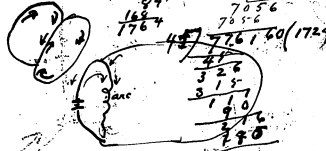
4½'

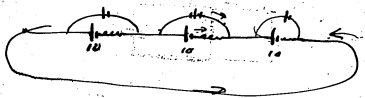
42
42
84

1764
44
7056
7056

168
176 4

45 7761 60 (172 440
45
326
315
110
99
110



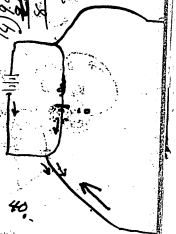


170 000
102 000
170 000
272 000
(3 over)

42
27

14
9

14 18 22 26
4 8 12 16 20 24

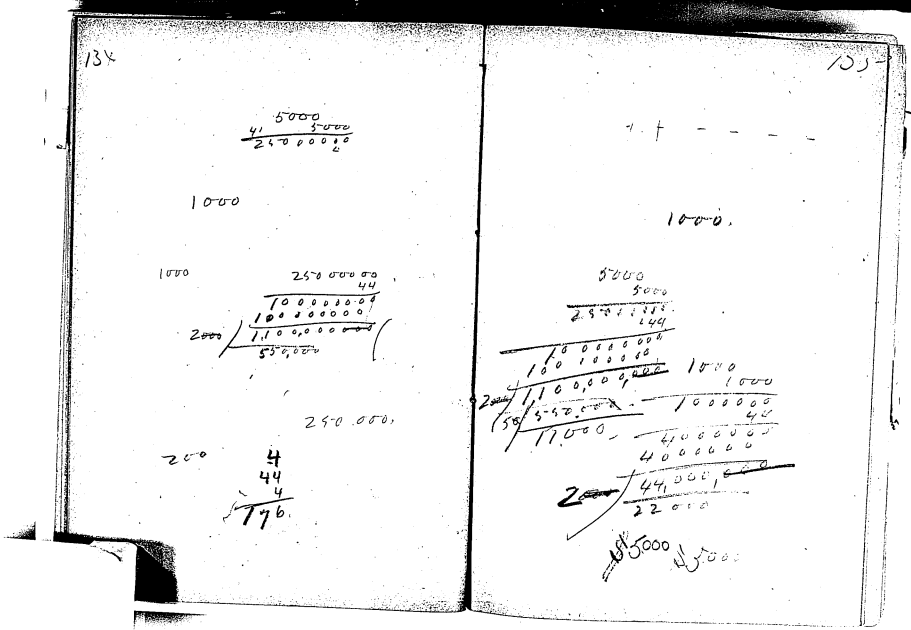


42
42
84
168
1764

33
33
66
132
1089

130 amt for me
is 15 at
1015 wel.

131



156

8.

100

1000

100.

15.

Fortnightly

157

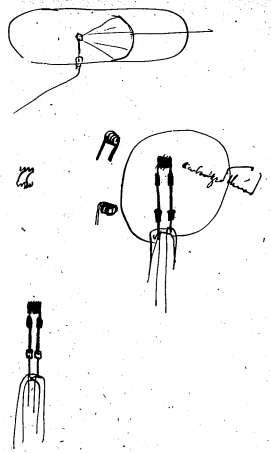
c

800
800
640000
44
256 1000
256 0000
10 | 2816
56 32

160000.

10.

16

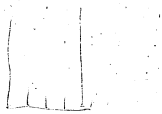


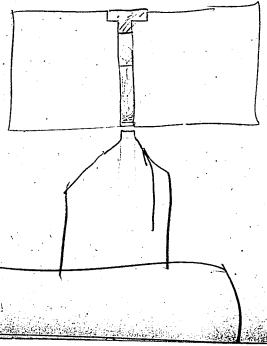
Edison Laboratory Note Book No. 22.

Page 144.

Carbonized Thread Filament.

See Edison Patent:
223,898 (Jan. 27, 1880.)





Edison Laboratory Note Book No. 22.

Pages 148 to 157.

Lamp Regulating Devices, &c.

See Edison Patents:

214,636

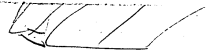
214,637

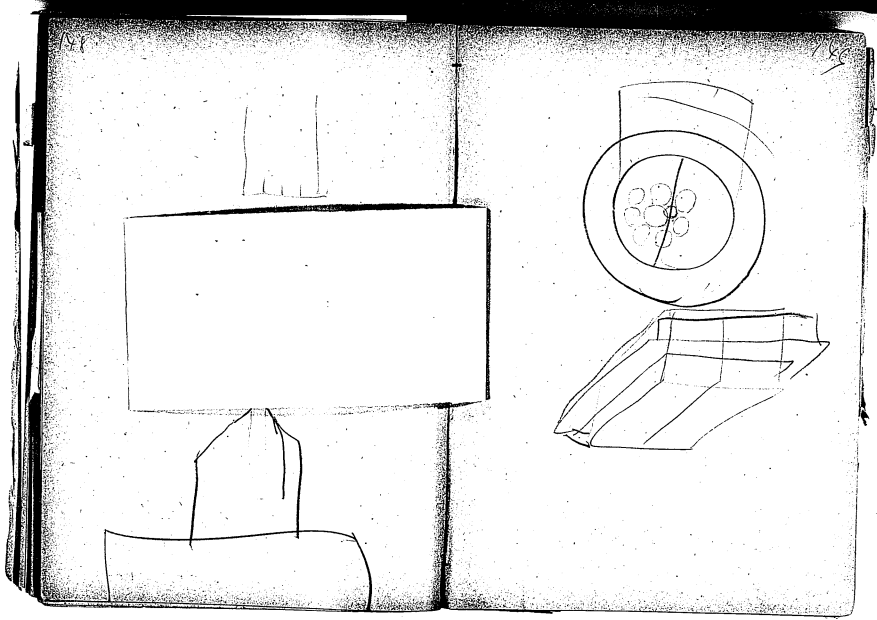
216,860

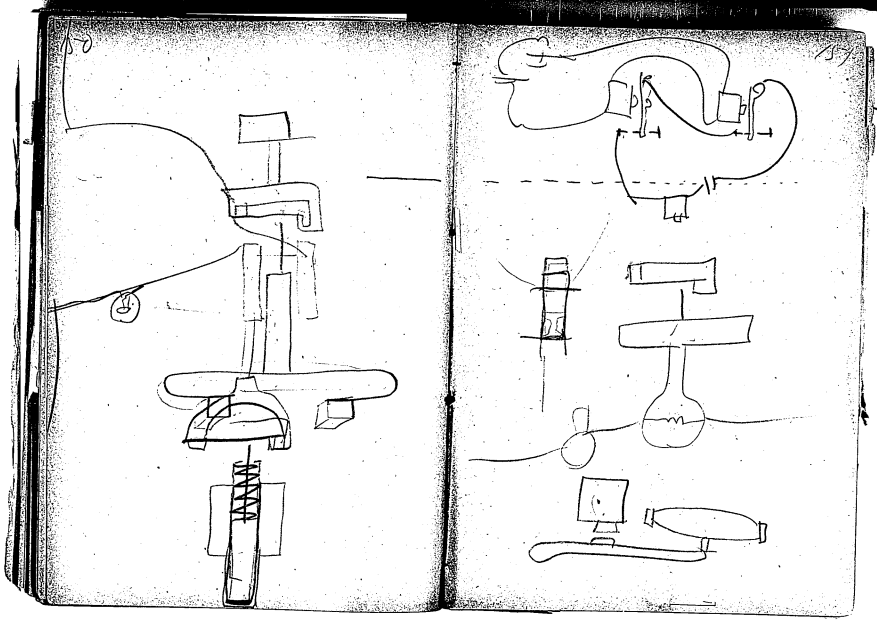
227,207

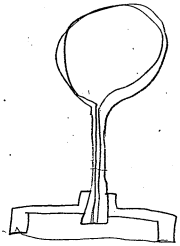
227,238

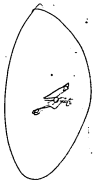
227,239

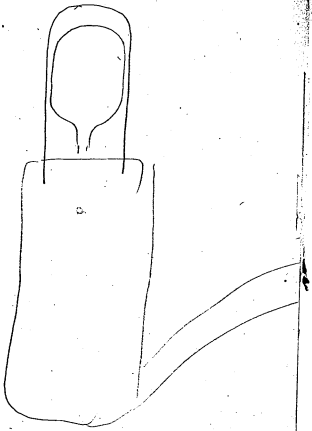


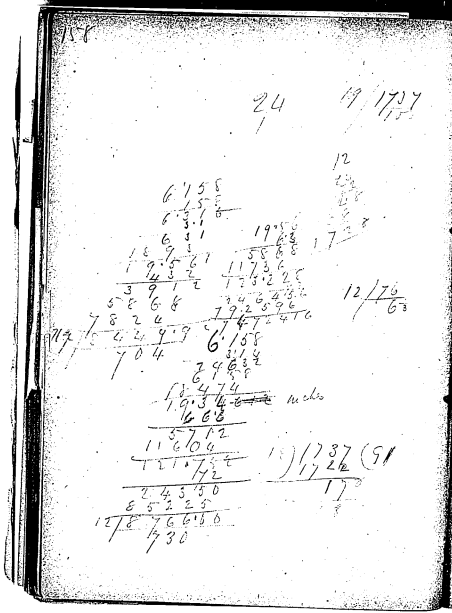






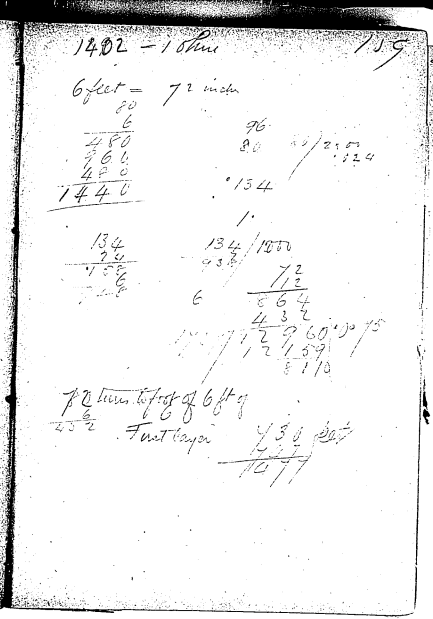


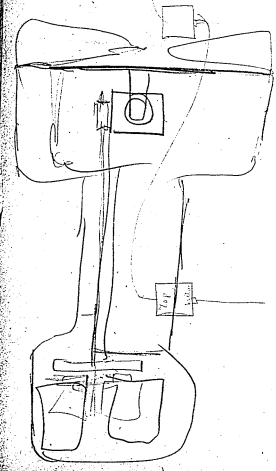


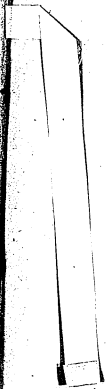


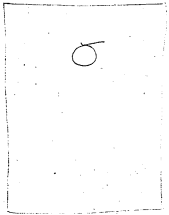
1402 = 1 chain

6 feet = 72 inches









164

1 Pattern for diaphragm ring
2 Body pattern
3 Base pattern
4

4 coffs collard 2 internal 2 external
88 outside 88 inside
4 coffs 2 internal 1 External
176 inside 78 outside,

4 / 4 / 16 / 44 / 64 / 64 / 70 / 4 / 176.

2 / 176 / 88

8

3 / 4 / 4 / 16 / 44 / 64 / 64 / 70 / 4 / 234

3 / 234 / 11

3 / 234 / 78.

78 / 2 / 156 / 78 / 234

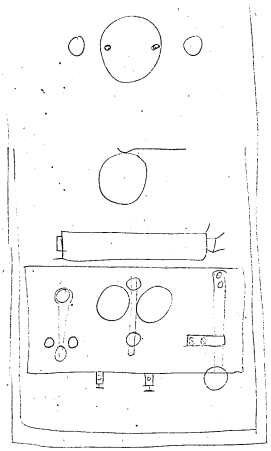
3 / 1 / 2 3 4.

78 / 3 / 234

163

Points in Patterns

1 Recess base for rubber strip
2 Carry rounding on body right round to base
3 Give draught on body
4 Put on knob when handle is
5 Make hinge 1 inch long
6



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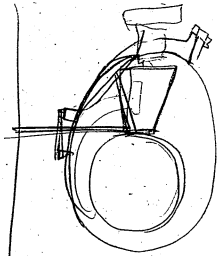

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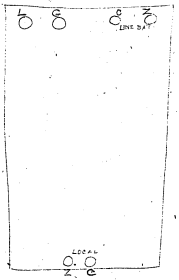
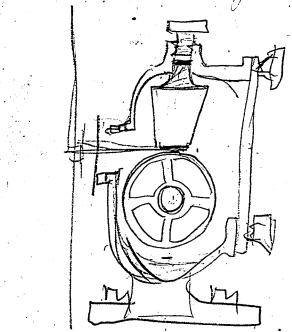
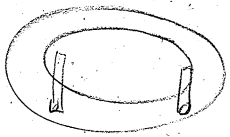
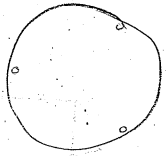


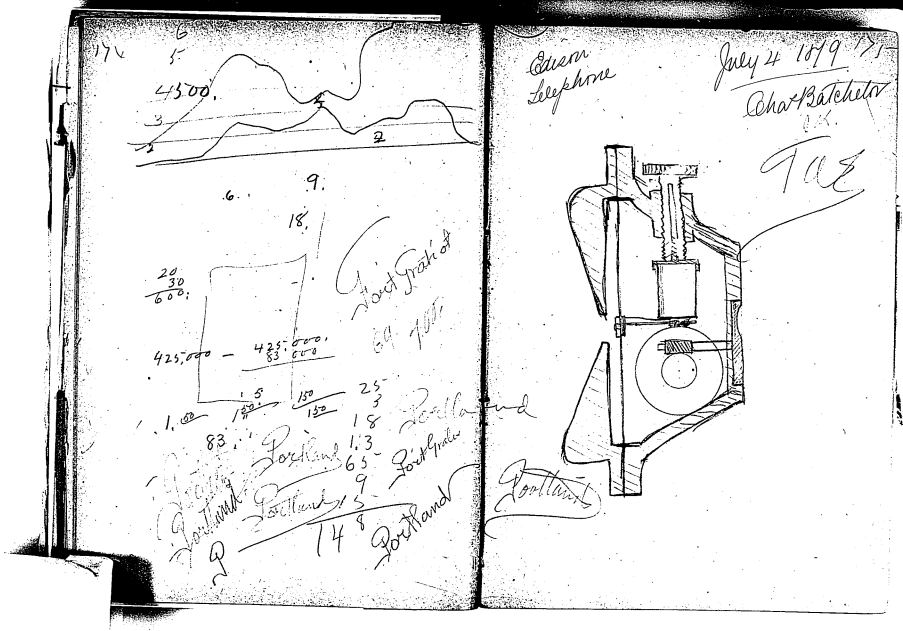
170

Thos Edison July 4 1879
Telephone
Chas Batchelor
Jno Ford

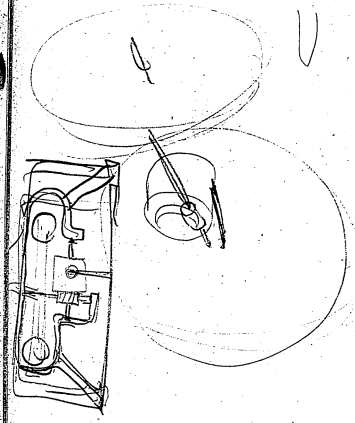







45:00'
Queen
Telephone
July 4 1879
Char Batchelor
Portland
Portland
Portland
Portland
Portland
Portland
Portland
Portland

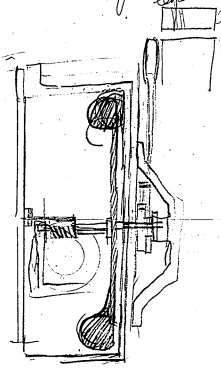
176



Edison Telephone

July 4 1879 177

Edison Watchtelephone

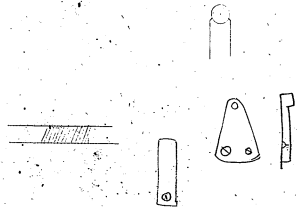


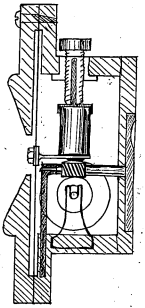
180

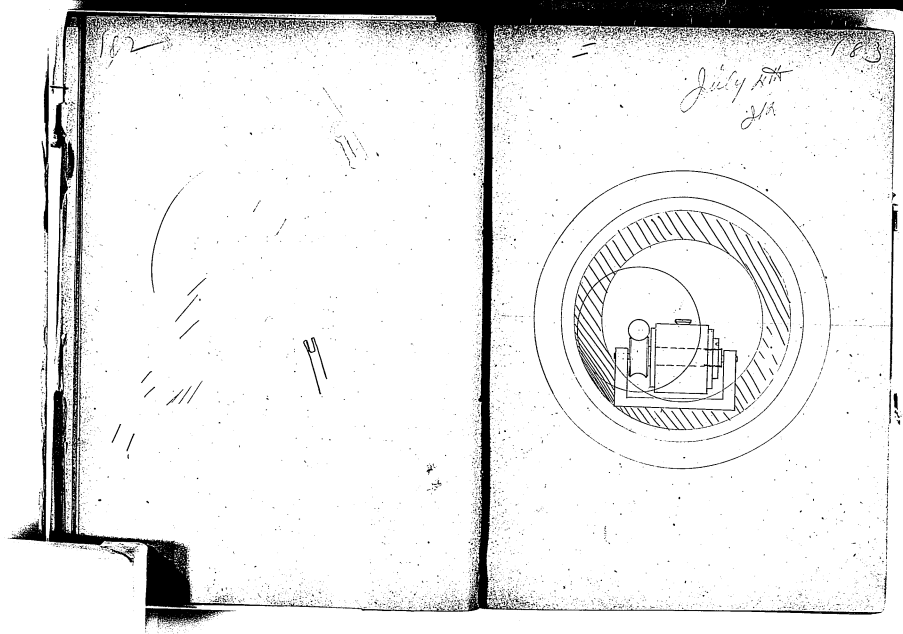
Electric Telephone

July 11th 1879

Alexander Graham Bell







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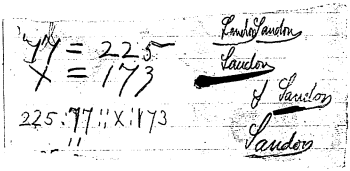

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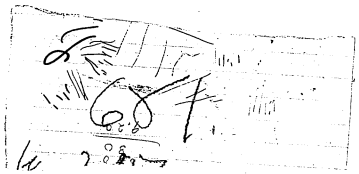
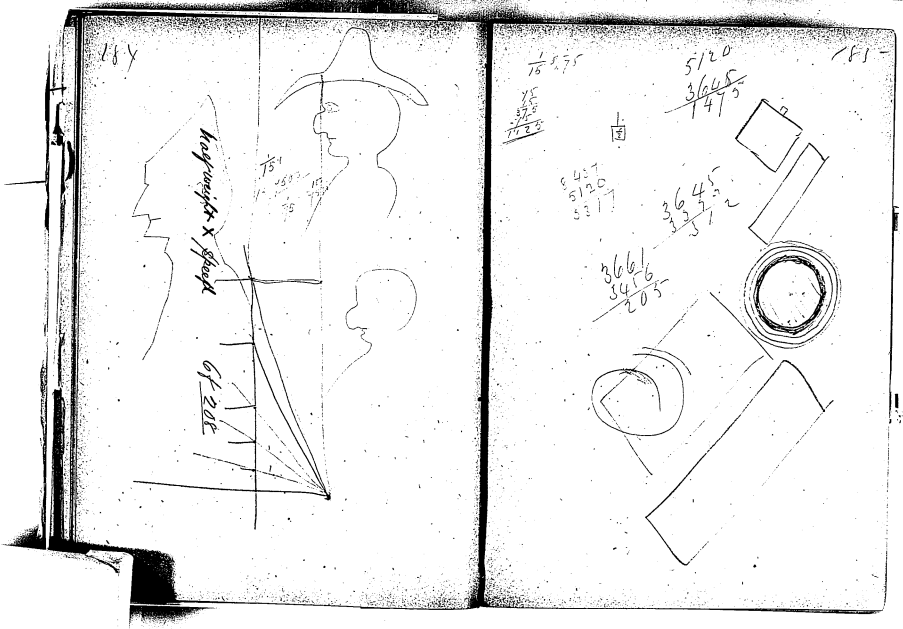
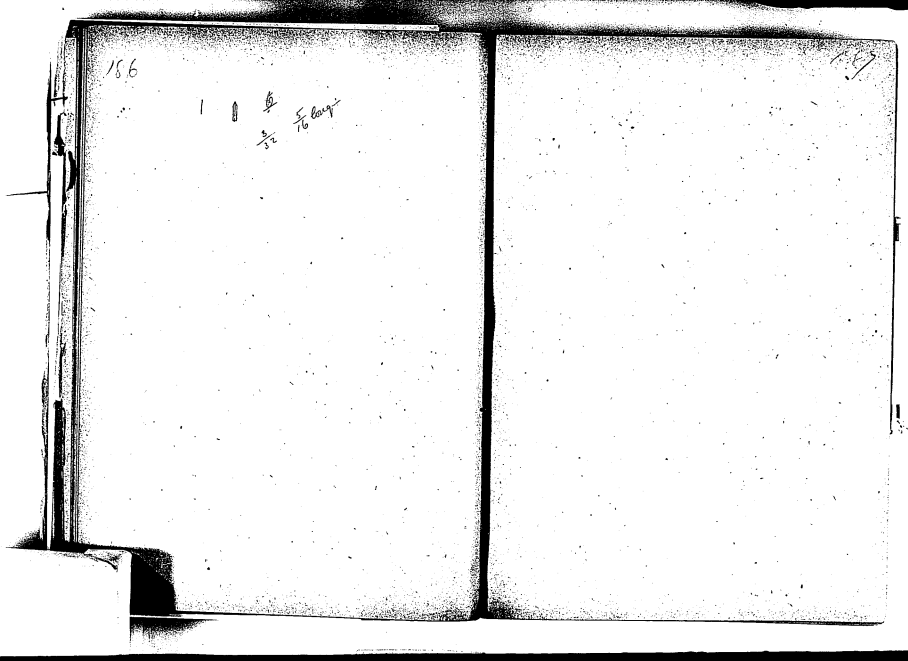
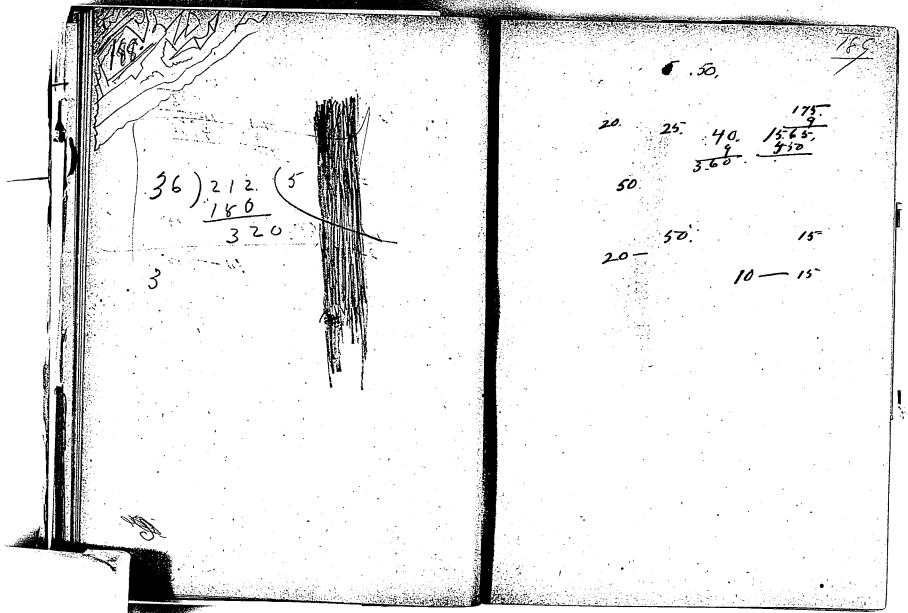



184
Map weight x speed
Gr 2dd
181


186
1 lb
5/32
5/16 long


36) 212. (5
180
320
3
.50.
20. 25. 40. 175
5
15.65
4.50
3.60
50.
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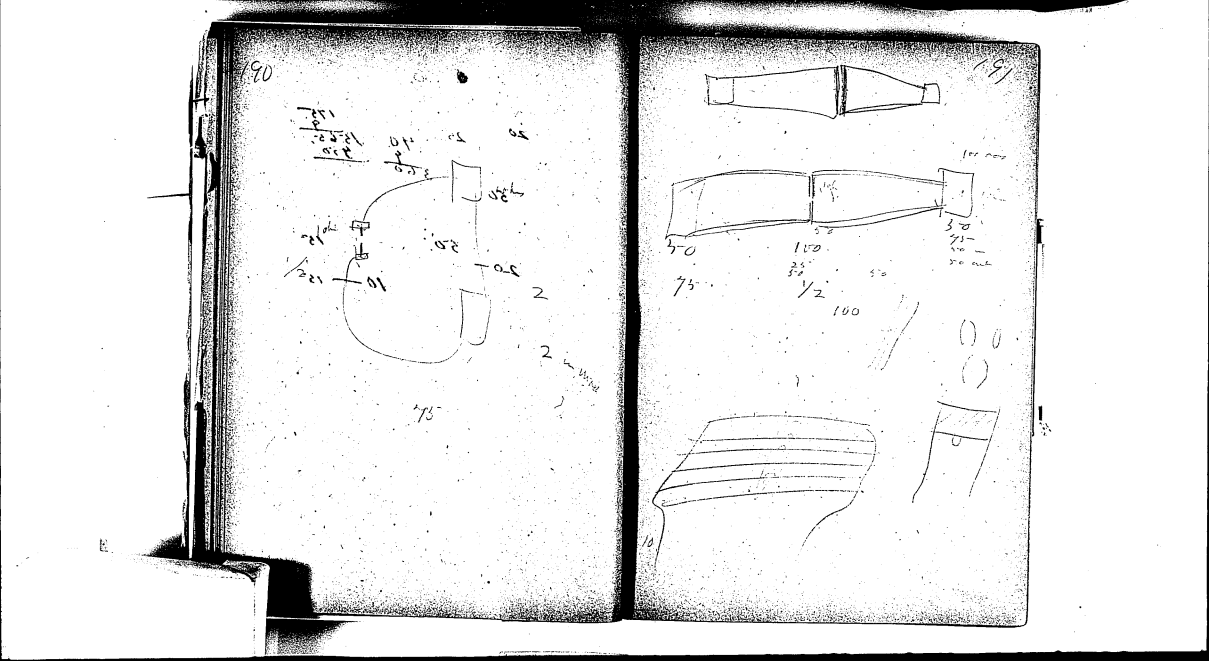
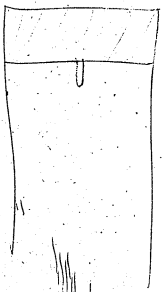
10— 15



192



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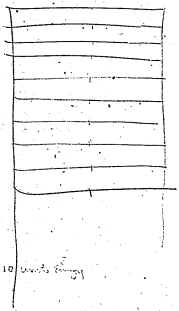
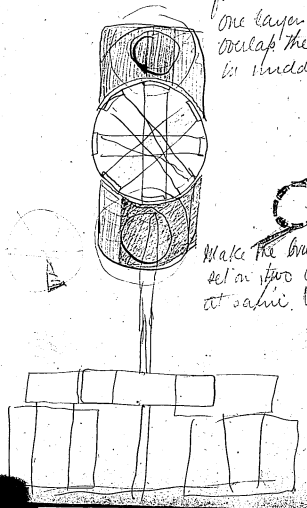


Give plenty of room for the wire as one layer will overlap the other in middle



Make the brush to set on two Commutators at a time

Edison Laboratory Note Book No. 22.

Pages 206 to 209.

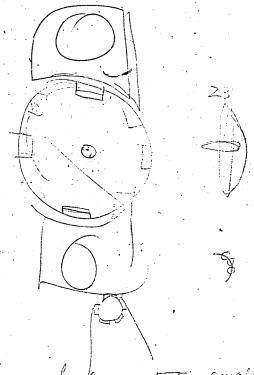
See Edison Patent:
270,201

Make the Commutator small Blocks with small space between

~~Armature~~ Commutators # 8

Coils # 4 Jones & Tyler

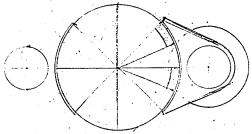
Give plenty of room for the wire as one layer will overlap the other in middle



John Make the Commutator small block with small space between

~~Armature~~ Commutators 8

~~Coils~~ Coils 4 John's 1/35



212

86) 203456 (2365
172
314
258
565
516
496
430

68.3

2034
16
2204
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325 44

2345 / 33000
9460
2365
3310

3) 205 (68
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68
3
204

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68
544
408
4624
44
184 96
184 96

100) 203456

213

8400
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252,000

8. 29

2102,56

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96

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12612
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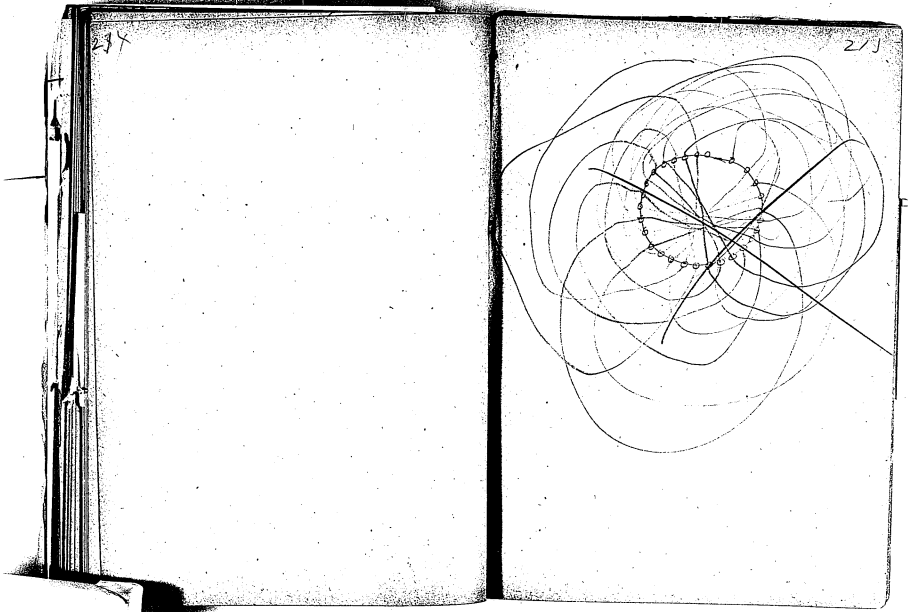
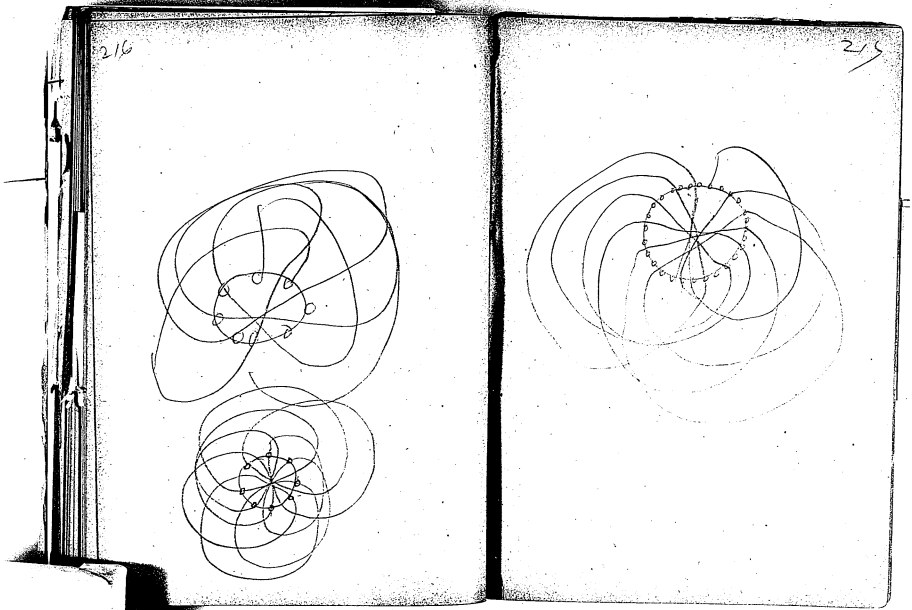
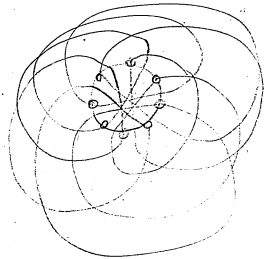
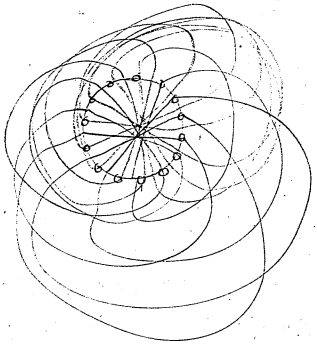
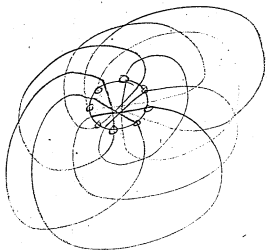
3632

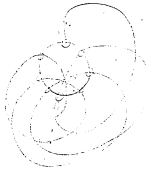


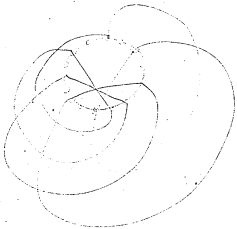

216
215





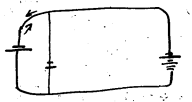


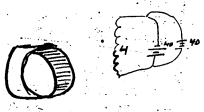


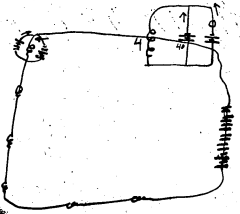


224

225







42.46
10.8

45.8

7

1.6274
.0334

1.6608

451 : 82.55 :: 45.8

82.55	1.9167
45.8	1.6609
4.51	9.3457
	2.9233

838 Volts

238

11.05

Spiral war on about thirty minutes, light was about 5 Candels, Res 13 ales

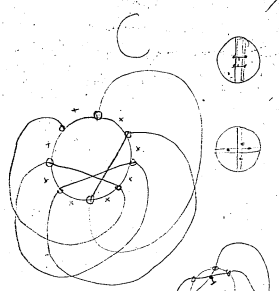
29 | 29744 (1026 4

29 | 1025 (35

29 | 29744 (1026 4

74 8 5
164 16 10 29
1645

1025 30 29
170 35
955 145
87
1015

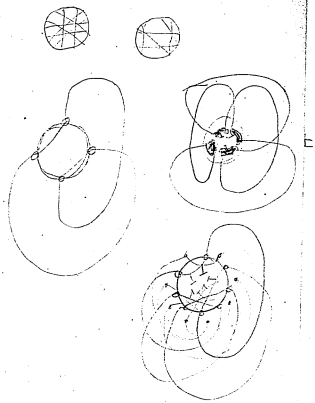


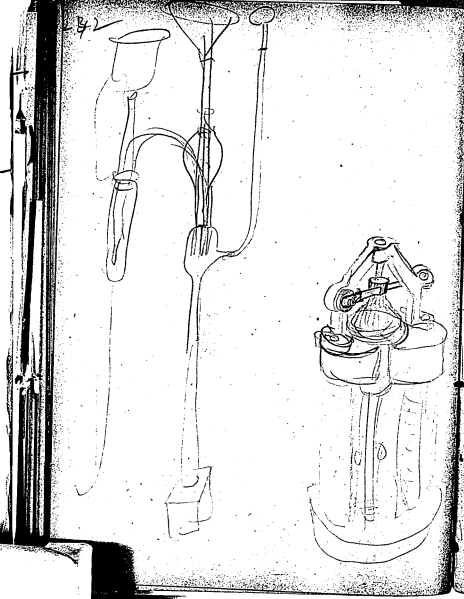
26 1100
26 27
156 7700
52 2300
676 29700
44
704
2704
29744

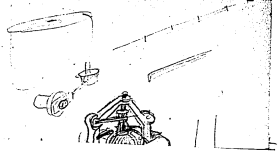
27 | 29744 (1100
27
27
27
4

27
1100
2700

239







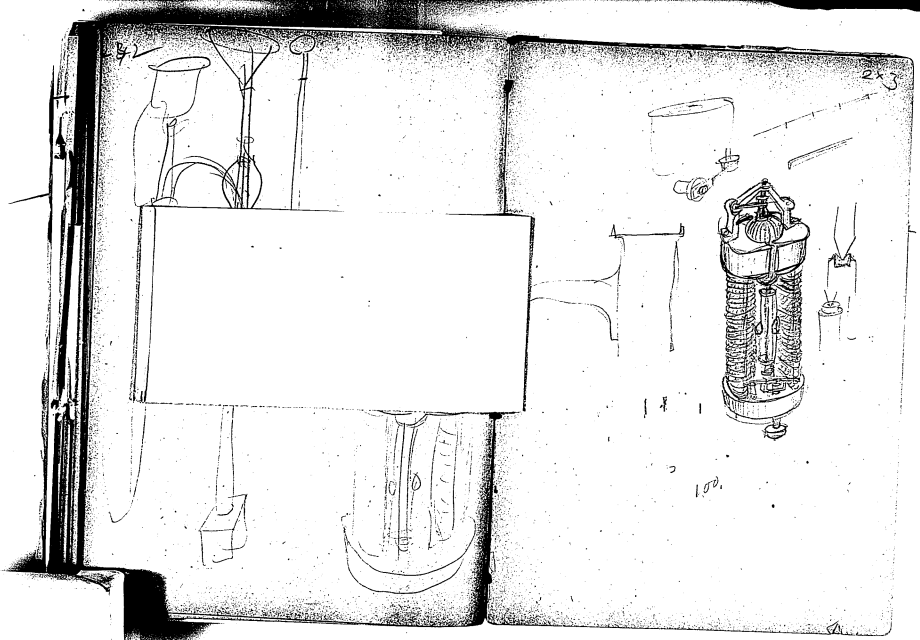
Edison Laboratory Note Book No. 22.

Pages 242 to 248.

See Edison Patent:

272,401

108.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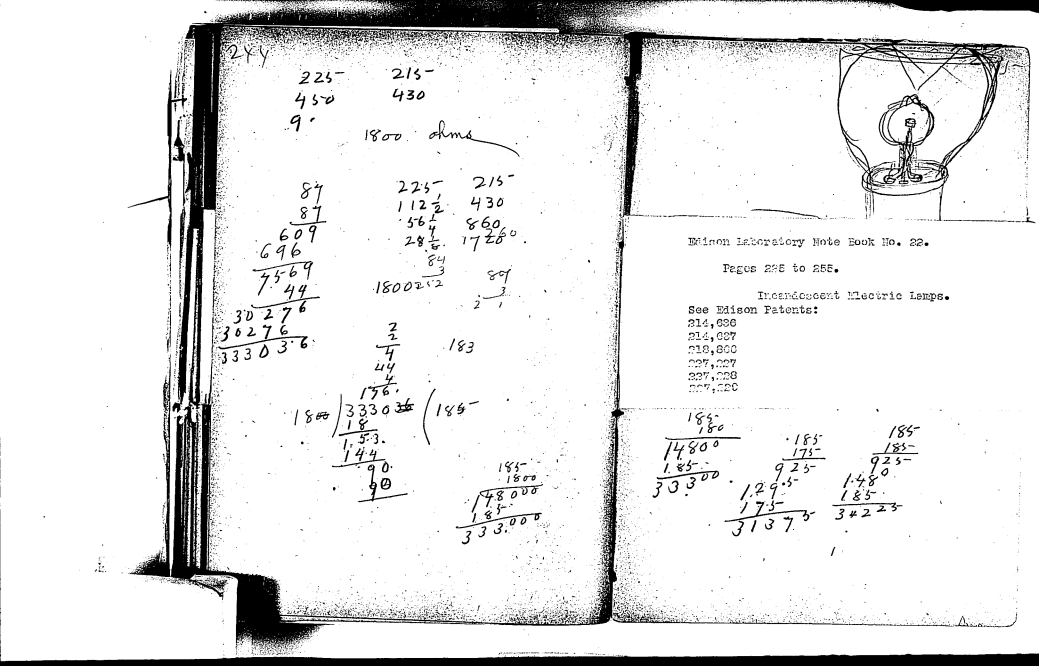
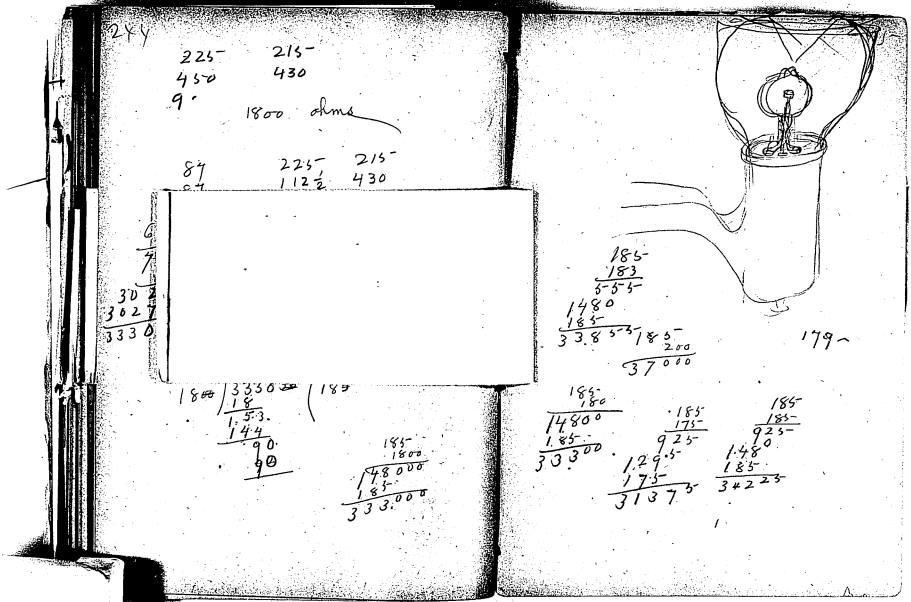


Edison Laboratory Note Book No. 22.

Pages 228 to 255.

Incandescent Electric Lamps.

See Edison Patents:
214,636
214,637
218,800
227,027
227,028
227,220


225-
450
9.
1800 ohms
225-
215-
430
87
225-
112½
215-
430
185-
183
5-5-5-
1480
185-
3385-3-3
185-
200
37000
179-
185-
180
14800
185-
33300
185-
175-
925-
1295-
175-
31375
185-
185-
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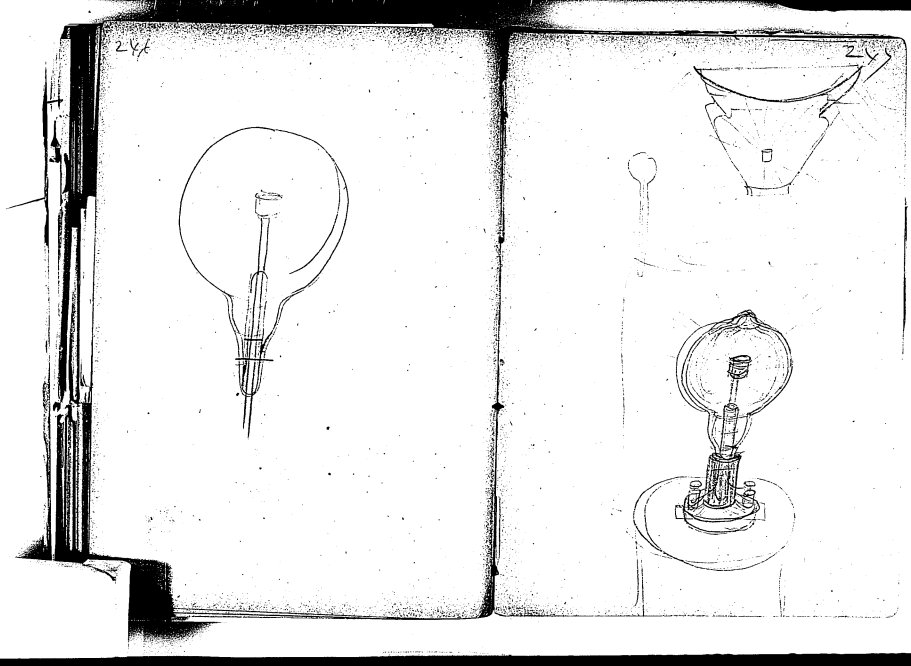
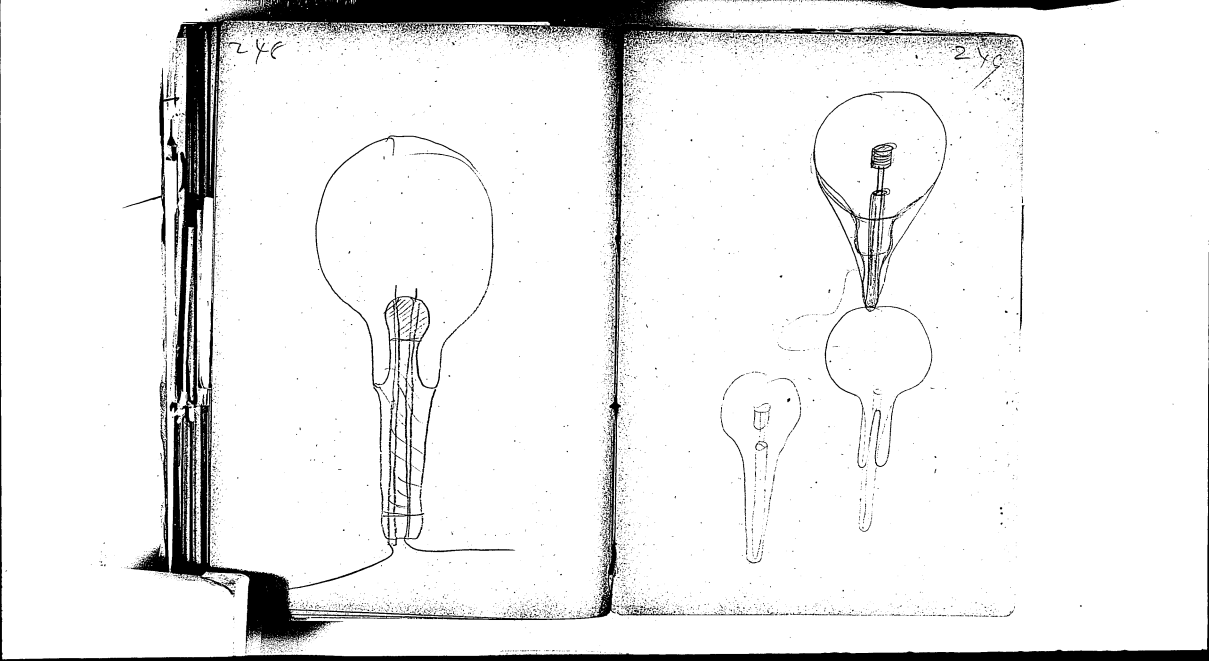
185-
1800
48000
185-
333000





100.

1 1/1000.

25.

20.

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400

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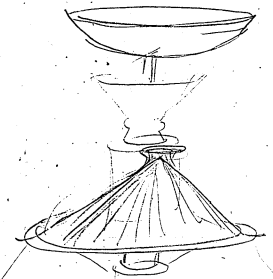
25

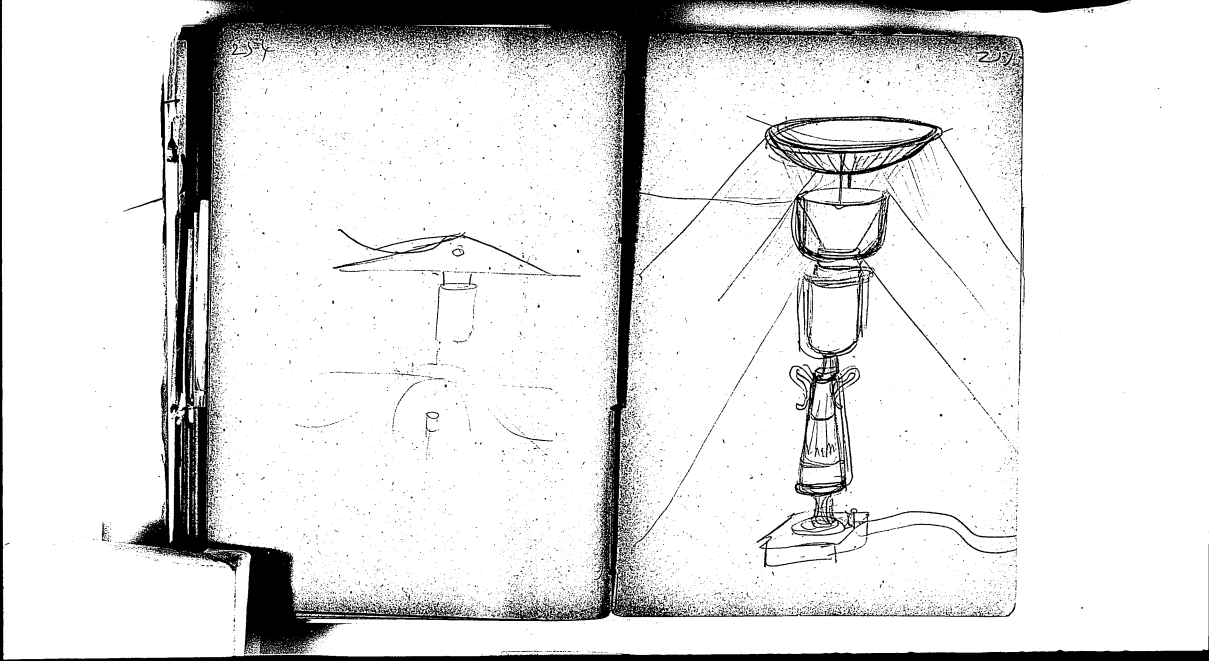
1/50 = 1/1000.

1/1000.

100 = 1/1000.

1/1000.





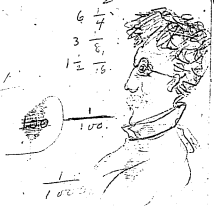
256

217

1
1
10

1
2
4
8
16
32
64

100
50
25
12 1/2
6 1/4
3 1/8
1 1/16



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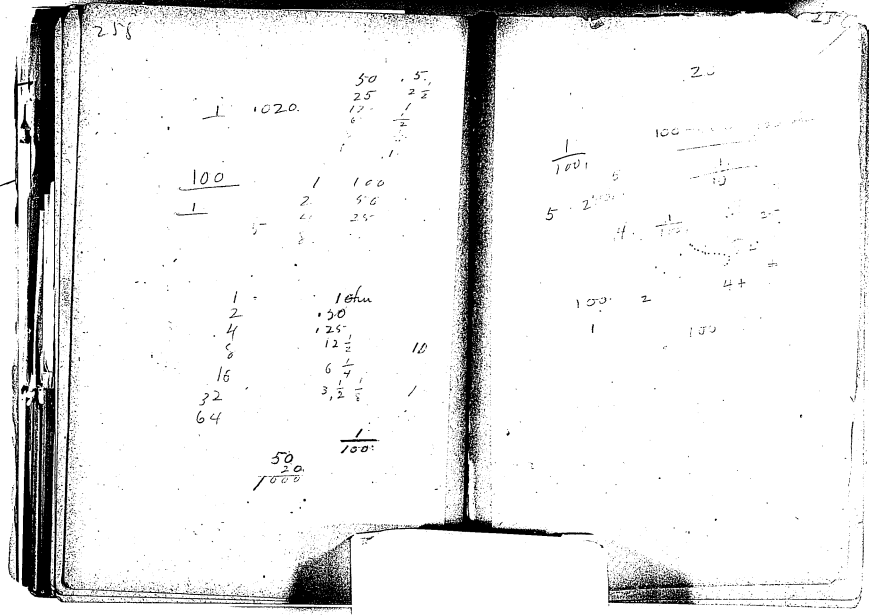
1/1000

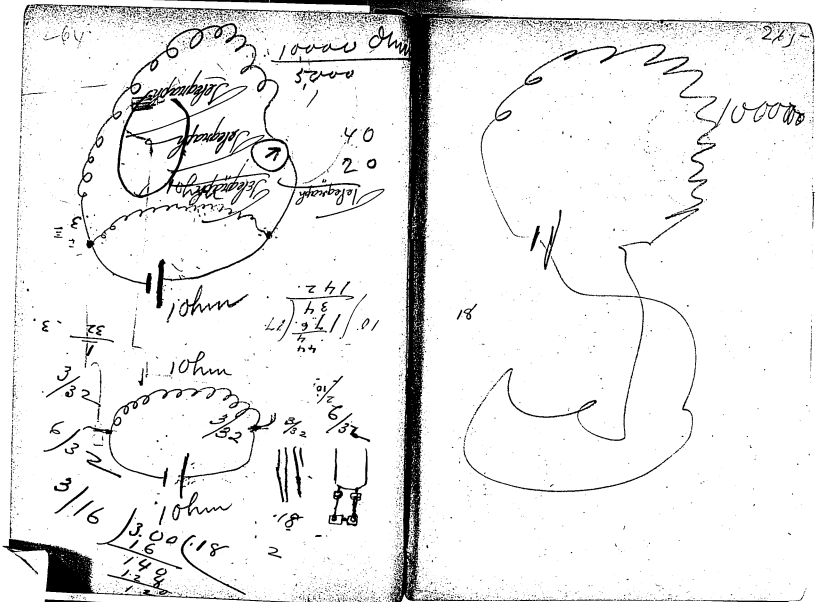
1/100

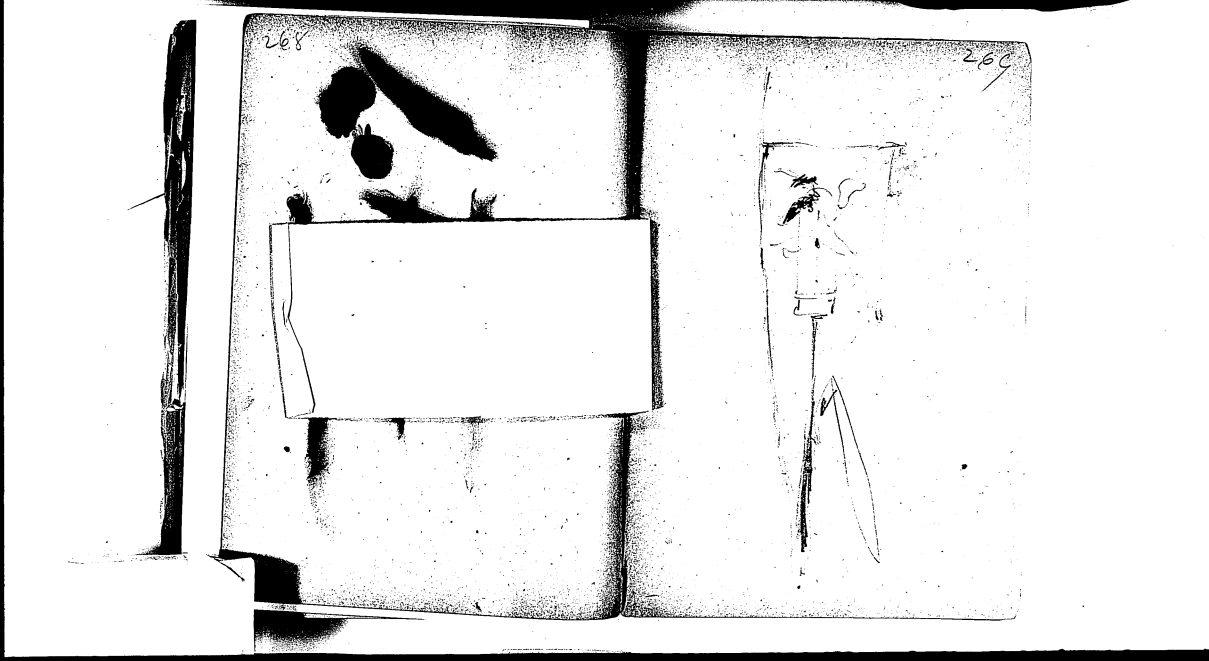
1/64

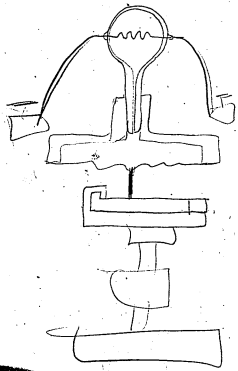


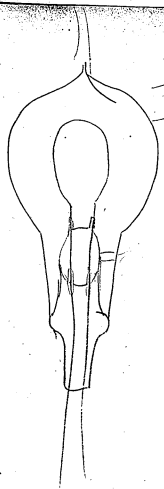
In your last number I see an ~~an~~ communication from a person named weston of newark. ~~How communication~~ to those who are conversant with the subject, ~~it quite sufficient~~ will ~~at once convey to the mind~~

Mr Weston is known as the inventor of a very poor nickel plating Dynamo Electric machine, and lately of ~~an electric~~ another similar apparatus for Electric Lighting. These machines constructed in violation of every known law of both Electricity & Magnetism


10 ohm
10 ohm
10 ohm
40
20
18
2
3/16
3/32
6/32
18


268
269





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15
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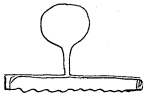
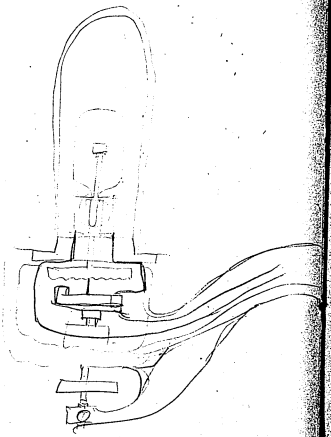
225

220
400





Dunn

9.442
4.721

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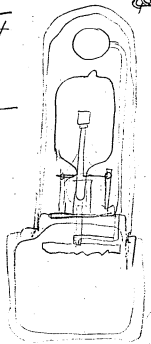
9.294

9.00
.294
8.706

250
31
.281

500
31
.531
2
1.062



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4.75
.470
9.22
8.706
.514

4.721
.562
4.159
2
8.318

9.500
.031
9.469
1.062
8.407

9 9.220
8.407
.813
.477
.624
.514

No. 1

9.22
8.316
.902

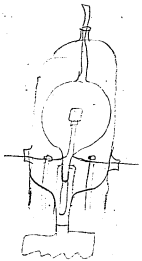
9.22
8.316
.816
.82

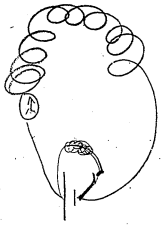
No. 2

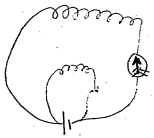
9.39
9.40
8.46
.940 .94

No. 3

9.46
9.29
.170 .17







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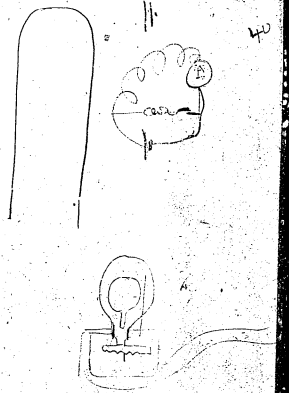
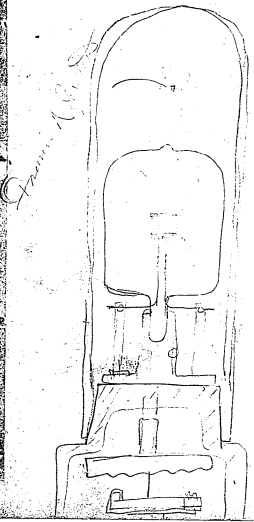


112 403

281